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Appeal Brief 12-30-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: **Gerald Klebe** Appellant: **Nick Bromer**

GAU: **3618** Title: **DORSIFLEXION SKATE BRAKE**

Serial No.: **09/995,097** Filed: **Nov. 27, 2001**

This paper: **December 12, 2002**

APPEAL BRIEF

Commissioner for Patents
Washington, D.C. 20231
Sir:

The Appellant appeals from the Final Office Action mailed on September 16, 2002, a Notice of Appeal was filed on October 18, 2002.

AUTHORITIES

(1) Normal and Abnormal Function of the Foot, by Merton Root, et al., Clinical Biomechanics Corporation, Los Angeles; (2) Manual of Patent Examining Procedure ("MPEP"); (3) Model demonstrated at the interview of May 15, 2002; (4) Affidavit of September 23, 2002.

REAL PARTY IN INTEREST

The real party in interest is Nick Bromer, the Appellant.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 2-17 are pending, of which 4, 7, and 10 were withdrawn from consideration. The remaining claims 1, 2, 5, 6, 8, 9, and 11-17 are rejected and are on appeal.

STATUS OF AMENDMENTS

The Amendment After Final Rejection of September 25, 2002, was apparently entered even though the Examiner checked the boxes for refusal of entry in the Advisory Action of October 7, 2002; the Appellant assumes this because the Examiner stated in the Advisory Action that the amendment to claim 17 had overcome the rejection under § 112, 2nd paragraph. The checking of the boxes for refusal of entry is assumed to be a clerical error on the part of the Examiner.

SUMMARY OF INVENTION

Claim 2 recites

For a user having a toe and standing on a skate, a skate braking mechanism comprising: a brake;

The user's toe is recited in the preamble because the toe's upward motion ("dorsiflexion" is the medical term for it) is the basis of the Appellant's invention.

The first-recited element, the brake, can be of various forms. Preferably, it has a brake shoe that bears against one of the skate wheels. A preferred embodiment of the brake shoe, shown in Fig. 3 and labeled by reference numeral 350, uses urethane belting as a brake-shoe material (for reasons explained on page 10 of the specification).

To contact the wheel W1, this shoe 350 is be pulled up by a double-ended rod 320, which rotates the arm 340 about a hinge pin 130. When the rod 320 moves up, the small gap between the brake shoe 350 and the wheel W1 is closed and the wheel rubs on the brake shoe 350. Both ends of the rod 320 are attached to a toe-lifter (not shown in Fig. 3; discussed below) that pulls up the arm 340 to engage the brake (page 10, line 11).

The rod 320 is shown cut away on the far side, and on the near side is shown cut away closer to the brake shoe so as not to obstruct the view of the other structures.

The embodiment of Fig. 1, that was considered by the Examiner, is a simpler embodiment because there are no linkages in the braking mechanism, only a one-piece arm 100 that includes both the brake shoe and a toe lifter. An in-line type of skate is shown, with tandem wheels W1, W2, ... mounted on a truck T. The arm 100 is pivoted on either side of the wheel W2 by a pin 130 that is coaxial with the second wheel W2 (page 7, lines 23- 25); this is a convenient position because the axle of wheel W2 can double as the hinge pin 130. (The honorable Board should be aware that axle of an in-line skate usually does not rotate; the axle protrudes from the sides of the wheel and the protruding parts are fixed to the truck; the wheels have bearings pressed into them so that they can spin around the stationary axles.)

Hinging the arm 100 at the pin 130 provides extra braking force (page 8, lines 11-15). Also providing extra braking force is the shape of the brake shoe 150, which preferably has a toroidal double curvature to mate with the surface of the wheel W1 (page 8, lines 6-10). The increased mechanical efficiency relates to the issues of this case, as discussed below.

In Fig. 1 the shading lines on the portion of the arm 100 above the hinge pin 130 indicate bends in the arm. These bends are described at page 8, line 19: "The second arm extension 120 widens to meet the edges of a toe-cap lifter 110. The toes inside (not visible in Fig. 1) press upward ... as indicated by arrow A, and that presses the brake shoe 150 against the front wheel W1."

The widening is needed for the following reason: the arm is of course wide enough at the toe cap 110 to accommodate the toes, but it cannot be as wide as the toes at the level of the brake shoe 150, or else the arm 100 would scrape the ground while turning a corner (when the skates are laterally inclined). The need for narrowness near the ground is well-known to persons skilled

in the art. At the bottom, there is no reason for the arm extension 140 or the brake shoe 150 to be much wider than the wheel itself.

Claim 2 continues,

a lifter connected to the brake and pressable upward by the toe of the user to actuate the brake;

In Fig. 1, the lifter is the toe cap 110. Other lifters disclosed in the specification include straps and toe bars (page 7, lines 4-10). The arrow A in Fig. 1 shows the upward motion ("dorsiflexion") of the toe cap when the user's toe presses it up.

The fact that the Appellant's brake is actuated by an *upward* motion of the toes, is essential to the invention because the toes are instinctively lowered when a person starts to fall forward, which happens when the brakes are applied too hard. Therefore, the user will instinctively release the brake, by lowering the toes, at the right time. The honorable Board is invited to consider the Summary between page 4, line 21 and page 5, line 27, where the Appellant explains this idea. Claim 2 summarizes the Appellant's advantage in the final paragraph:

whereby the brake connected to the lifter is actuated according to a natural motion of the user to maintain balance.

Dependent claim 3 recites that the lifter is pivoted to be moved upward by the toe. This is discussed above; pin 130 is the pivot.

Claim 12 recites a return spring, which is exemplified by spring 370 in Fig. 3. The spring retracts the brake shoe from the wheel when the user's toes are lowered.

Claim 16 is similar to claim 1 but recites "means for actuating the brake by pressing upward the toe of the user" and does not recites a "lifter.".

GROUPING OF CLAIMS

Claim 2 is rejected under a different reference than claim 16, and therefore must be considered independently.

ISSUES

(i) whether the claims under consideration contain subject matter supported in the specification such that a person skilled in the art is enabled to make the invention.

(ii) whether claims 2, 3, and 12 are anticipated by Integnan, USP 6,053,511.

(iii) whether claim 16 is anticipated by Carlsmith, USP 5,232,231.

ARGUMENT

(i) Claims 2, 3, 5, 6, 8, 9, and 11-17 were rejected under § 112, first paragraph. The Examiner states (Office Action mailed September 16, 2002, page 5, line 3) that the claims are not enabled "since it appears there would be mechanical interference among the structures of the brake mechanism to prevent the pivotal motion of the braking structure or to enable the brake shoe to engage the braking wheel."

The Examiner does not identify what parts would interfere in the § 112 rejection. However, in the preceding objection to the specification the Examiner asserts that the truck and pivot arm would interfere (¶ 4, third line from the bottom of page 3).

The errors in this rejection are discussed below.

The Examiner underestimates the level of skill in the art.

The Examiner states (*id.*) that "the wheel truck structure ... would be expected to occupy the position [of] the structure 100, so mechanical interference ... would exist." The Appellant believes that a person skilled in the art, when working from the Appellant's disclosure, would *not* try put two things in the same place, which is what the Examiner proposes. The person skilled in the art would put the structure 100 *alongside* of the truck structure. In the case of a conventional truck, with support plates on either side of the wheels, the skilled person could have put the structure 100 either inside or outside the truck plate, and there would be no interference in either case.

Most people do not build their own skates, they buy them, and therefore the person reading the Appellant's disclosure and making the invention will be an engineer working for a skate-manufacturing company. The Appellant believes that such a person skilled in the art would typically possess an engineering degree and experience, and would know how to make something that would operate instead of something that would jam because two parts were designed to occupy the same space.

It is also noted that the motions required are not large. The honorable Board is invited to consider the small gap between the brake shoe 350 and the wheel W1 in Fig. 3.

Furthermore, the Appellant expects that the person skilled in the art, as a matter of his or her skill, would refer to the *entire* disclosure while making the invention.

The Examiner has not carefully read the specification.

The Examiner writes, "The structure 100 appears to be planar structure." With respect, the Examiner has overlooked the shading lines on either side of the terminus of the lead line extending from reference numeral 120, and also the text at page 8, line 19, reading, "The second arm extension widens to meet the edges of the toe-cap lifter 110."

The Examiner has also overlooked the passage at page 8, line 6, stating that the brake shoe can be curved in the transverse direction (i.e., perpendicular to the plane of the paper and the curve mentioned at line 4). Double curvature implies three-dimensionality.

The Examiner states that "the structure would appear to have the brake shoe engage the side of the wheel W1 rather than its tread." The Examiner again overlooks page 8, lines 6-10, describing that the brake shoe of Fig. 1 can curve around the wheel rim and therefore can engage both sides of the wheel as well as the tread (i.e., the brake shoe of Fig. 1 is a section of a torus). Engaging the side of the wheel, or the tread, or both, are all alternatives well within the level of skill in the art, wherein both types of engagement are very well known. (It is noted that engaging the side of the wheel does result in braking, so even if a skilled person adopted the Examiner's interpretation there would be no problem relative to enablement: the brake would still work.)

The Examiner appears to neglect relevant portions of the specification.

The Appellant intended Fig. 1 to illustrate the *principle* of his claimed subject matter and not the details: those details are shown in Fig. 3, which represents the preferred embodiment (page 9, line 12). The fact that the Examiner restricted Fig. 3 does not mean that a person reading the Appellant's specification would ignore Fig. 3, which is certainly part of the Appellant's disclosure, and therefore it must be considered on the question of enablement. However, the Examiner only discusses Fig. 1 and ignores Fig. 3. (Because all the independent claims cover both figures, Fig. 3 is relevant to the question of enablement.)

As to Fig. 3, the Appellant describes an arm 340 that is "bent from [a] sheet metal blank" (page 10, line 6). The honorable board is invited to consider the portion of the arm 340 under the rod 320, where the circular dashed lines are interrupted: that is where the sheet metal lying in the plane of the paper is bent 90° and passes into the paper; from both front and rear sides of the bent portion, it curves up. The curve, shown by the solid circular line in front and the dashed lines behind, forms the surface on which the urethane belt 350 is wrapped.

The arm 340 is preferably on both sides of wheel W2. The pins 345 pass through holes in the arm 340, and these would not work if the pins were not held on *both* ends, because of the large forces on the belt. However, the arm 340 will work if only hinged on one side, assuming that the pins were not needed (for example, in the embodiments disclosed at page 11, lines 8-12. The shoe would not be twisted with only one arm 340, because the rods 320 support it on either side.

If the axle of the wheel W2 is supported on both sides by a truck plate, as is conventional and indeed universal according to the Appellant's knowledge, then the arm 340 would of course be located on one side of the truck plate (inside or outside) as a matter of design choice.

The rejection appears to contradict itself.

Immediately after stating that "the wheel truck structure (T) ... would be expected to occupy the position shown occupied by the pivot arm lift structure 100" the Examiner states that "the pivot arm lift structure 110 [*sic*, 100?] is shown to be outside the lateral edge of the skate plate ... to which the boot is affixed" (page 3, last four lines). As best understood, the Examiner puts the arm in two places: in the same place as the truck, and outside the truck. The rejection is respectfully submitted to be incomplete here, and therefore not applicable.

The Examiner makes guesses and assumptions.

The Examiner's states that the truck "would be *expected* to occupy the position [of] the structure 100, so mechanical interference ... would exist" and there is not enablement "since it *appears* that there would be mechanical interference" (emphasis added), which constitute an admission that the Appellant does not *disclose* interference: rather, the Examiner *infers* interference.

The Examiner does not meet his burden.

The test of enablement is whether or not "undue experimentation" would be required (MPEP § 2164.01). The Examiner has not identified what experimentation might be needed.

With respect, the Examiner has not mentioned the eight factors to be weighed (MPEP § 2164.01(a)); one factor is the existence of a working example. A working Model, constructed prior to filing, was demonstrated at the interview, but the Advisory Action of October 7, 2002, shows it is not considered (MPEP § 2164.02). The Affidavit of September 23, 2002, supports the Model; if the Affidavit is not given weight, the PTO must explain "why it doubts the truth or accuracy of any statement in a supporting disclosure" (MPEP § 2164.04, emphasis in original).

In sum, there is no enablement problem unless the Examiner's mistaken interpretation of a completely planar structure is adopted; and even if it were, the claimed brake would still work well when rolling straight (the shoe would be so wide that the edges would scrape when cornering). But the Examiner's interpretation is contrary to the specification, as noted above.

(ii) Claims 2, 3, and 12 were rejected under 35 U.S.C. §102(b) as being anticipated by Integnan '511. The errors in this rejection are pointed out below.

Integnan actively teaches against elevating the toes to brake.

Integnan uses a lifter 42 placed above the "crown" of the foot, which is well behind the toes. Integnan teaches that in pushing the lifter 42 upward, the toes go *downward* (Fig. 3A), which is *directly contrary* to the Appellant's concept, teaching, and claims.

Integnan actively teaches against using the force of the toes to brake.

The reference asserts, "the fact that the Toe itself simply and beyond any reasonable doubt has 'NO' enough power to effectively brake ... the Toe has simply no enough force even when amplified by a brake force amplifying means [for] effective braking" (col. 1, lines 32-41). This is *also* directly contrary to the Appellant's concept, teaching, and claims.

Integnan states, "The spirit and soul of [Integnan's] idea revolves around the use of the entire feet movement and more particularly the feet arching. When the foot is arcuated ... its two

end supports, namely the heel and the toes, exerts reaction forces ... The highest point of the arch is called the crown and this [is] around the tarsus and metatarsus zones of the feet ...It is ... movement of the crown that the spirit, soul, and scope of the idea is capitalizing" (col. 3, lines 28-43). The tarsus and metatarsus zones are shown as regions 34 and 35 in Figs. 2A and 3A (col. 4, line 63).

The downward "reaction force" that the toe exerts as an "end support" for the arched shape is only *about half* of the actuating force obtained at the crown of the foot, because the upward force of the crown must be balanced by the downward forces of both the heel and the toes. This follows from Newton's law and the fact that the foot is not accelerated relative to the boot. Therefore, the force exerted by the toe is not equal to the actuating force, and this puts Integnan outside the scope of claim 2, reciting "a lifter ... pressable upward by the toe." The toe, when exerting only half of the actuating force, cannot press Integnan's lifter upward.

The Examiner removes a limitation from the claim.

Claim 2 recites a lifter pressed upward "by the toe." The plain meaning is that the toe makes contact and presses on the lifter, and the specification fully supports that meaning.

The Examiner appears to adopt a strained interpretation, namely that if Integnan's toe exerts a force *anywhere*, and *in any direction*, then the saddle 42 of Integnan is pushed upward "by the toe;" thus, the Examiner converts Integnan's downward toe force into the Appellant's upward toe force, and maintains the rejection.

This is akin to stating that a door is pushed closed "by a user's foot" because, while the user's *hand* is what actually contacts the door, a counter-force is supplied by the user's feet pressing against the floor in the opposite direction. (This must be true, from elementary physics.) Yet, despite the fact that the feet exert forces when closing a door by hand, the plain meaning of "I closed the door with my foot" is that the person made contact with the foot, not the hand; and

the plain meaning of "I closed the door with my hand" is that the person made contact with the hand and not with the foot.

In the same way, a person who says, "I pressed the lifter up with my toes" does not mean, "I pressed the lifter up with the crown of my foot while I pressed the boot down with my toes."

The Examiner has presented no reason why the Board should adopt his strained and unnatural interpretation of the Appellant's claim language. On the other hand, the Appellant's specification fully supports the plain meaning of claim 2 and the Appellant's interpretation argued for above.

Upward pressing with the toes cannot possibly actuate Integnan's brake.

Fig. 4 shows that the strap 46 is far above the toes (oval circles in Fig. 4). If, for the sake of argument (the reference does not disclose this) the saddle 42 could rotate forward about the pin 47, it could not reach the area above the toes because it would first hit the edge of the toe-covering portion of the boot 44. And if the toe-covering portion were removed (not disclosed or suggested) the angle of saddle would be too steep for the toes to press it; it would only rotate back the way it came instead of actuating the brake.

Integnan uses muscles that are not related to lifting of the toes.

The honorable Board is invited to consider the attached photocopies from Normal and Abnormal Functions of the Foot (listed in the Table of Authorities).

Page 191, Fig. 8-9 shows the extensor hallucis longus tendon (i.e., tendon of the long extensor of the big toe bone or hallux). Fig. 8-9 is a view from above the foot. It shows the tendon coming through the ankle (from the extensor hallucis longus muscle in the calf) and attaching to the top of the big toe bone. The first metatarsophalangeal joint ("TA" in the figure) is the "joint between a metatarsal and a phalanx of the toe" recited in the Appellant's claim 15.

The caption to Fig. 8-9 reads, "The extensor hallucis longus muscle has the capability to dorsiflect [raise] the hallux [big toe bone]."

Page 222, Fig. 8-41, also a view from above, shows the extensor digitorum brevis muscle (i.e., short extensor of the small toes), that raises the small toes.

The Appellant believes that the extensor digitorum brevis muscle and the extensor hallucis longus muscle are the only muscles that exerts force in his invention.

To force the big toe down is the function of the *flex*sor hallucis longus tendon, shown in Fig. 8-26 on page 209, which is a view from underneath the foot. Fig. 8-27 on page 210 shows both this tendon and its muscle in the calf. The small toes are moved down by the flexsor digitorum longus tendon, shown in Fig. 8-31 on page 213, again a view from below.

The opposing actions of the flexsor hallucis longus tendon and the extensor hallucis longus tendon are best seen in Fig. 8-46 on page 226. To the extent that Integnan pushes the toes down, Fig. 8-46 shows such action to be distinct anatomically as well as in direction.

Since Integnan teaches against use of the toes, the honorable Board may wonder, what muscles *does* Integnan teach to use? The Appellant believes that the force against Integnan's saddle 42 is supplied by a number of muscles in the bottom of the foot, which are attached to the heel bones at one end and at the bases of the toes at the other end. These include the abductor hallucis muscles (Fig. 8-62, page 239), which move the big toe sideways; the flexor hallucis brevis muscle (Fig. 8-64, page 240); and the flexor digitorum brevis muscle (Fig. 8-68, page 244). All of these appear to be used in arching of the foot as shown by Integnan in its Fig. 3A.

Thus, none of the muscles that might be used to actuate the Integnan brake are used in the Appellant's brake, and conversely.

In summary, Integnan shows force exerted by the "crown" of the foot, well back from the toes, and teaches strongly against using the force of the toes directly, because they are too weak.

(iii) Claim 16 was rejected under 35 U.S.C. §102(b) as being anticipated by Carlsmith '231. This errors in the rejection are pointed out below.

Claim 16 recites "means for actuating the brake by pressing upward the toe of the user." Fig. 2 of Carlsmith shows braking by changing the angle of the entire foot relative to the ground. Clearly, if the person shown in Fig. 2 lifted only his or her toes, there would be no effect because the *entire* foot would not rotate. The claimed action, "pressing upward the toe of the user," would not actuate the Carlsmith brake unless the rest of the foot were *also* pressed upward; and the foot could be rotated while the toes were pressing *downward.* As in the rejection over Integnan, the Examiner adopts a strained interpretation.

The honorable Board is invited to further consider the following points:

(1) The scope of any claims in a patent that might issue will be construed, and limited, by the record; and ***the Appellant now states on the record that he disclaims any coverage, by his claims 2, 3, 12, and 16, of brakes that can be activated without rotating the toes upward relative to the rest of the foot, to actuate braking.*** Thus, even if a court were later inclined to adopt the Examiner's strained interpretations that introduce motions other than raising the toes, the public will be able to rely on the Appellant's statement directly above, to limit the claims to what the Appellant himself considers to be the proper scope.

(2) The rejection under § 112 was introduced only in the *second* Office Action, and the Appellant respectfully questions why the Examiner at first found the disclosure enabling, and then changed his mind. The specification was not amended by the Appellant, so that cannot be the reason; and the claims were not amended in any way that would require new support (it is noted that the Examiner has not asserted new matter).

The introduction of a new (and final) rejection late in the examination is respectfully submitted to show that this rejection is a "borderline" rejection at best.

(3) The Examiner and SPE Brian Johnson questioned the Appellant's statement at the interview of May 15, 2002, that the Model he demonstrated was constructed prior to the application filing date. Because of their apparent doubt, the Appellant submitted the Affidavit of September 23, 2002. However, in the Advisory Action of October 7, 2002, the Examiner wrote that "the model presented at the interview clearly showed features not in the application originally filed." What these features are was not explained.

The Appellant has signed an affidavit, and there is no evidence against its assertions anywhere in the record. If the PTO is to take the position that the Model is a fake and the Affidavit is a fraud, then it should do so on the record; and if is not to take that position, it must accept the Model in support of the application, as required by the MPEP, because all the evidence shows that the Model was made prior to filing and therefore is relevant to the rejection.

The honorable Board is requested to overturn the rejections for the reasons above.

A clean version of the claims, and photocopies from the cited textbook are attached.

Respectfully submitted,

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